DOCUMENT RESUME

ED 143 682 TM 006 429

AUTHOR Datta, Lois-ellin
TITLE He and She: Sex Fairness in Selection and Guidance Based on Educational Testing.
PUB DATE Jul 77
NOTE 19p.; Revision of paper presented at the International Symposium on Educational Testing (3rd, University of Leyden, the Netherlands, June 27, 1977)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Career Choice; *Interest Tests; *Occupational Guidance; *Occupational Tests; Personnel Selection; Post Secondary Education; Predictor Variables; Secondary Education; *Sex Differences; *Sex Discrimination; Social Change; *Test Bias; Test Construction; Testing Problems; Test Interpretation; Test Items; Test Reliability; Test Validity

ABSTRACT

Debate on criteria for assessing sex fairness in occupational interest inventories has centered on four issues: (1) whether interpretational material should stress the prospect of social change or the reality of present occupational segregation by sex; (2) the appropriate form for reporting scores (raw, pooled sex norms, or separate sex norms); (3) the feasibility of developing measures which are reliable, valid and have low or no correlations with gender in item-level preferences; and (4) whether the criterion of validity should be prediction or exploration, and involve hit rates which are weighted or unweighted for current occupational frequencies. Recent developments indicate that valid, reliable measures which are uncorrelated with gender can be developed, if the criterion is exploration of compatible occupations and hit rates are considered independently for each major category. Debate on the criteria of sex fairness may be shifting from the technical aspects of measure construction and validation to the personal judgments about the social utility of restricting occupational exploration to conform to current distributions by gender versus the social utility of encouraging exploration of non-traditional careers. (Author/MV)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED143682

July 1977
REVISION

He and She: Sex Fairness in Selection and Guidance Based on Educational Testing

Lois-ellin Datta*
National Institute of Education

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

A. Significance of Sex Fairness in Occupational Interest Inventories

The notion that individual personality characteristics of job applicants or counselees could be matched with characteristics of successful workers in different occupations for the greater good of both workers and employers has been examined in the United States since the early 1900s, perhaps as a concomittant of the interest in utilitarian education for all sectors of society (Puffer, 1913). Transforming research on the correlations between work success and personal values to vocational interest tests was a rapid next step. The first such measure, the Carnegie Interest Inventory, was published in 1921. Buros' Mental Measurement Yearbook, which appeared in 1939, included 15 vocational interest tests. In succeeding years, theoretical and empirical studies of vocational interest measurement expanded to include the work of Strong, Kuder and Holland (Cole and Hanson, 1975; Hoppock, 1976).

The use of vocational interest inventories for career guidance and for occupational selection has also expanded. Many high school students now take at least one of these measures. As adult career counseling becomes more widely available, people are likely to be given career interest tests as a routine part of lifelong learning (Pascal, 1975). Access to self-assessment devices and occupational information soon may be as close as a nearby library or supermarket through computerized systems, such as those now being installed in ten states as part of the National Occupational Information System. At least three proposed Federal laws involve set-asides for vocational guidance including expansion of such systems.

---

*Opinions expressed are the author's; endorsement by the National Institute of Education is not implied. Paper presented at the Third International Symposium on Educational Testing, University of Leyden, the Netherlands, June 27, 1977.

TM006 429

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Lois-ellin Datta
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND THE ERIC SYSTEM CONTRACTORS."

At the same time that access to occupational guidance is increasing, the coverage of laws prohibiting sex-biased education is expanding, and mechanisms for enforcement are being strengthened. Title IX of the Education Amendments of 1972 (Public Law 92-318) includes sections on counseling practices, and the regulations refer directly to vocational interest measures. The Vocational Education Amendments of 1976 require sex-fair education in no fewer than 16 separate provisions, ranging from sex-fair occupational counseling through equal access to all courses to sex fair placement. To enforce the law, each state may use up to $50,000 of Federal funds for a state office whose staff have full-time responsibility for monitoring implementation of the sex-fairness provisions.

These laws are thought necessary because there have been few changes in the occupational structure of the United States with respect to gender, although women have been entering the labor market at an almost revolutionary rate. Sex-segregated occupations reflect discrimination in recruiting, hiring and promotions, but also they can be traced back to sex-segregated vocational education enrollments and completions (Steele, 1975; Roby 1975; Sexton, 1977), and sex-biased educational practices in the primary school classroom (Guttentag and Bray, 1976; Leifer and Lesser, 1976). The provisions of Title IX were intended to ensure that sex discrimination will not prevent women from being equally represented among college presidents, deans, school superintendents at state and local levels, and school principals (where they are now a tiny minority), and that all components of education involving public funds will encourage equally the development of young men and women: sports, academic work, extra-curricular activities, and occupational development. Sex fair vocational guidance and the sex fairness of vocational interest measures thus have become matters of Federal law as well as professional practice.

Defining sex fairness and sex bias in vocational interest measurement has proven to be controversial. Stimulated by Schlossberg's (1973) analysis of sex-restrictive counseling, the American Personnel and Guidance Association has been developing guidelines on sex fair practice, largely through the Association for Measurement and Evaluation in Guidance's special committee on sex fairness in vocational interest testing (1974). The American Psychological Association's standing committee on testing also has devoted considerable attention to defining desirable practice for sex fair measurement. In 1975, the National

Institute of Education published guidelines resulting from the work of a special panel and a conference on sex fair career interest measurement (Diamond, 1975).* These guidelines are now being distributed by the American Psychological Association with copies of its materials on test standards.

While the NIE guidelines seem to be generally accepted, the controversies are not resolved, and indeed may have been sharpened by some methodological developments of the past few years. The basis of dispute initially seemed technical (e.g., related to item pools and norm groups and how to deal with validation when the criterion group adults workers were employed in sex segregated occupations). Now debate centers on beliefs about whether educational testing should be pro-active or re-active to social changes; and whether the effects of earlier socialization are so dominant that later opportunities have little influence on interests, or if interests, attitudes and values can expand as opportunities arise (Cole and Hanson, 1975). To those persuaded to the former position, changing tests so that guidance and selection procedures have the lowest possible correlation with gender would harm both the counselee and the employer ("What about the girls who want to be housewives?"). To those persuaded to the latter position, modifying the tests so guidance and selection procedures have the lowest possible correlation with gender can and should be accomplished without loss of reliability, construct validity, concurrent validity and without harm to either counselee or employer.

In addition to this difference in beliefs, where there is agreement on what might constitute desirable practice (e.g., gender-neutral item wording), there is often disagreement on whether making these changes will make enough difference in the outcomes to be worth the effort. This is by no means a trivial question, since revising tests and reorienting counselors to the new interpretations is a long, costly process.

The next sections examine some of the technical issues and the arguments for and against the value positions.

---

*Available from the National Institute of Education. NIE also has supported development of a training kit for counselors, applying the guidelines to day-to-day activities. The kit is available from Abt Associates, Newton, Mass. A new book of readings on research and development in sex fair career interest testing is being edited by Carol Tittle and Donald Zytowski for fall 1977 publication, also by NIE.

B. Some Technical Issues

1. Defining sex fairness and sex bias: At least three definitions of sex fairness in career guidance measures have some currency.

> Holland: "Sex fair means an equal number of effects of about equal size, but these effects may include both similar and dissimilar influences." (1975, p. 32). As an example, if taking a vocational interest inventory was associated with the same proportion of changes in career interest codes for men and women, this would be evidence of sex fairness, even if the occupations the changed codes encouraged them to examine were only those traditional for men and women.
>
> Hanson and Prediger: "An inventory is sex restrictive to the degree that the distribution of career options suggested to males and females as a result of the application of scoring or interpretation procedures used or advocated by the publisher is not equivalent for the two sexes. Conversely, an interest inventory is not sex restrictive if each career option covered by the inventory is suggested to similar proportions of males and females. A sex-restrictive inventory can be considered to be sex biased unless the publisher demonstrates that sex-restrictiveness is a necessary concomittant of validity." (1977)
>
> Diamond: "Within the context of career guidance, sex bias is defined as any factor that might influence a person to limit--- or might cause others to limit--his or her consideration of a career solely on the basis of gender." (1975)

To Holland, then, sex fairness means equal effects of taking the inventory, independent of whether occupations suggested for exploration are or are not limited to those traditional for men and women. To Hanson and Prediger, sex fairness means that the distribution of career options suggested for exploration will be about the same for men and women, unless the publisher proves that sex restrictiveness is required for validity. To Diamond, anything causing limitation of consideration of careers solely on the basis of gender is regarded as bias.

The data in Table 1 illustrate one aspect of the differences in the three positions. The six major Holland codes (broad areas of interest to which specific occupations are related through a keyed codebook) were derived for a national sample of high school students using three different scoring referents.

Table 1: Distribution of percentages for Holland codes for men and women for different types of score referencing*

Holland Code	Raw Score		Sep. Sex		Pooled	
	W	M	W	M	W	M
Social	67%	26%	18%	14%	29%	4%
Enterprising	3%	10%	14%	13%	11%	14%
Conventional	10%	9%	18%	16%	20%	12%
Realistic	0%	19%	14%	19%	3%	36%
Investigative	9%	30%	19%	21%	13%	25%
Artistic	11%	6%	17%	15%	24%	9%

*Norms for 3,439 college bound high school students (2,009 women and 1,430 men) who took the American College Testing Interest Inventory in October 1972. Source: Cole and Hanson, 1975, p. 14

The raw score codes are based on simple tallies of agreement with items on the six scales. The scale receiving the highest number of tallies is the individual's area of greatest interest. Occupational areas are suggested for exploration to substantially different proportions of men and women on five of the six scales. The difference is understated since in practice codes from the three highest scales are used to focus occupational exploration and these tend to diverge even more with regard to gender distributions than the distributions on the six major scales. No woman would be encouraged to explore "realistic" occupations which include the skilled trades. Few would be encouraged to look at scientific occupations or those dealing with abstract thought. Andfew men would be encouraged to consider careers related to social service or teaching.

Similar results are obtained when the scores are reported from the reference point of a pooled norm group, although use of norms rather than simple raw scores reduces the extreme divergence by gender of career options suggested. When separate sex norms are used, the proportion of men and women who would be encouraged to explore occupations in the six areas is quite similar.

How scores are reported---only one aspect of the definition of sex fairness in occupational measurement---would affect which occupations these young people would be encouraged to consider further. Absent other information, Holland would recommend use of raw scores or, with less enthusiasm, pooled norms; Diamond recommends that detailed information be given on the effects of the norming decisions and would prefer separate sex norms; Hanson and Prediger would reject both raw scores and pooled norms, would reluctantly use the separate sex norms (due to problems in interpretation) and would prefer item-level equalization of menand women's choices so that raw scores or pooled norms could be used without sex restrictiveness.

2. Summary of the technical issues and a status report: Table 2 identifies the main technical points discussed in analyses of sex fairness and sex bias in occupational interest testing and summarizes the positions taken with regard to these points. The NIE Guidelines (Appendix A) and the essays in Issues of Sex Bias and Sex Fairness in Career Interest Measurement (Diamond, 1975) give further technical perspectives on these points.

Table 2. Approaches to Occupational Interest Inventory Construction, Validation and Interpretation with Regard to Sex Fair Guidance

ISSUE	Recommended Action: Holland	Prediger	Diamond
Item-level			
1. Have same items for men/women	yes	yes	yes
2. Item pool includes only items where choice is uncorrelated with gender	no/invalid	yes	yes
3. Item pool within scales should be balanced by gender preference, if a pool uncorrelated with gender can not be obtained	no/invalid	yes, but #2 is possible	yes
4. Items worded to be gender-neutral	yes, but no effects	yes, but few effects	yes
5. Occupational titles to be gender-neutral	yes, but no effects	yes, but few effects	yes
Scale-level			
1. Same interest areas or occupations to be reported for men/women	yes	yes	yes
2. Same form used for men/women	yes	yes	yes
Norm-validation level			
1. Separate sex norms for men/women if items not gender neutral	no, use raw scores	yes, but gender free items are possible	yes
2. Same norms for men/women (pool) if items not gender-free or balanced	no, use raw scores	no	no

ISSUE	Holland	Prediger	Diamond
3. Report raw scores without norms when items not gender-free or balanced	yes	no	no
4. Same norms for men/women only if items are gender-free or balanced	no	yes	yes
5. Report raw scores only if items are gender-free or balanced	no	yes	yes
6. If scales are occupational rather homogeneous, use norms weighted by gender according to current occupational distributions	yes, needed	no	no
7. If scales are occupational rather than homogeneous, use separate sex criterion groups or pooled groups with equal weights by sex	no/invalid	yes	yes
8. Validate by predicting occupational choice and hit rates weighted unequally according to current occupational distributions and choices of studies	yes	no	no
9. Validate by hit rates within present interests and occupations and weight equally by of interest choice	no	yes	yes
Interpretational-level			
1. Report sex composition of criterion and norm groups in the manuals	yes	yes	yes
2. Criterion and norm groups revised every five years to keep up with occupational changes	no	yes	yes
3. Interpretative materials emphasize social change in occupational development, encourage sex-atypical exploration ation	no; only if codes so indicate	yes	yes

ISSUE	Holland	Prediger	Diamond
3. Interpretativematerials emphasize social change in occupational development, encourage sex-atypical exploration	no; only if codes so indicate	yes	yes
4. Interpretative materials encourage examination of all occupations within interest areas of homogeneous scales	no; only if codes so indicate	yes	yes

In terms of the status of action:

(a) interpretation-level changes: The test manuals of publishers who have recently revised their materials emphasize social change, describe the effects of socialization on response to the measures, and encourage both men and women to explore a variety of non-traditional as well as traditional occupations. (Campbell-Strong, 1976; SRA, 1976). How completely these approaches to interpretation have been put into practice is uncertain. Training in sex-fair career counseling has been offered at the state level in a series of workshops led by Verheyden-Hilliard (1976). Sex-fair interpretation of occupational interest tests has been featured at American Personnel and Guidance Association meetings. As part of the materials designed to help implement the Title IX Guidelines and the new Vocational Education Amendment Guidelines self-evaluation checklists on sex fair interpretation of career counseling inventories have been distributed to state and local educators. There have been,however, no systematic studies of what happens when the client meets the counselor, using the new interpretative materials.

(b) norm-level changes: test publishers who have recently revised their materials are now providing information on all scales for both men and women, and generally are providing separate sex norms for men and women when there are item-level gender differences in response. There are, however, exceptions: Holland's measures have not been gender-equalized nor does he advocate use of separate sex norms. In addition, there is some concern for cross-gender scoring on occupational scales, which has been suggested as one way to expand career exploration in non-traditional areas for men and women. It is felt that the cross-sex recommendations have non-random biases resulting from the nature of the criterion groups which are difficult to explain in test interpretations. As an example, theeffect of cross-gender scoring seems to depend on the stereotypic direction of sex segregation in an occupation: a male scoring high compared to other men in occupations involving social or artistic interests, for example, will tend to score lower than most women while a woman average in comparison to most women on these occupations will tend to score high in comparison to most men. When these reversals are multipled over the 20 or more scales of an occupation-referenced interest test, the interpretational task may become quite difficult.

(c) Item-level changes: there is one instance of extensive item-level changes. Prediger and Hanson (1977) have created a new interest test involving homogeneous scales measuring six basic interest dimensions: Science, creative arts, social service, business contact, business detail and technical. A pool of 200 items was written; these were believed to reflect similar socialization experiences for men and women, and seemed to tap interests in the six basic dimensions. Through successive field trials, 90 items was selected, 15 for each of the six areas. On these items the percentage point difference between men and women's choice was 10% or less.

As illustrative examples:

- o old type of item, social service area — "I like to care for babies"
- o new type of item, social service area — "I like to help my friends solve their problems"
- o old type of item, technical area — "I like to change spark-plugs"
- o new type of item, technical area — "I like to fix things that go wrong around the house"
- o old type of item, artistic area — "I like to arrange flowers"
- o new type of item, artistic area — "I enjoy selecting clothes that will look good together"

The "old" type of item, which predominates in most interest tests, is drawn from experiences which are different from most men and women in our society: most men are socialized away from caring for infants (or emotional nurturance) and most women away from heavy machinery, car repairs and technical interests. The "new" type of item is drawn from experience where men and women are more likely to have the same kind and amount of participation (helping friends with problems, handling "fix it" needs in the home). Hanson and Prediger (1977) estimate that for most scales, as many as 40% of the items already have 10% to 15% or smaller differences in preference by gender; item-level changes would thus require substitution of about 60% of existing items rather than 100% change.

Because the items are almost (but not perfectly) uncorrelated with gender-choice, the resulting six scores can be scored with pooled norms for men and women or for separate sex norms without major changes in the distributions of occupations recommended for focused exploration. The reliabilitiesof the six scales are fairly high: the median coefficient alpha reliability estimate is .87. With regard to validity, the scales intercorrelate according to theoretical expectations, with the highest correlations between areas continuous in the theoretical space around the primary axes of data/ideas and things/people. In addition to construct validity, the inventory scores obtained by 152 occupational criterion groups made good sense, and the hit rates in predicting from freshman interests to senior college major were above 60%, when college major base rates were weighted equally (e.g., when the hit rates for astronomy, a low base rate major, were weighted equally with the hit rates for education, a high base rate major). While Hanson and Prediger do not feel hit rates predicting later occupational choice are as useful a criterion for validating inventories intended to aid

focused exploration as are construct and concurrent validity, the predictive hit rates reported are as high or higher for their approach as for approaches involving "old" types of items or raw scores, when the criterion groups have been weighted equally for base rate differences.

Summarizing the studies of effects of the various criteria for sex fair occupational interest measures, (1) changes in occupational titles and gender designation have minimal effects on response to the inventories, when no other changes are made in item pools or norms (Holland and Gottfredson, 1976); however, tests are regarded more favorably without such overt distinctions as pink forms for girls and blue forms for boys, and the use of the "he" and "she" for stereotypic occupations such as "the doctor/he; the nurse/she"(Johansson, 1975). (2) changes in referencing groups affect the proportionate distribution of recommendations. Where no changes are made in item pools, raw score reports from pooled groups direct men and women to occupational exploration in a substantially sex-segregated manner; for example, almost no women are encouraged to explore engineering types of work and almost no men are encouraged to explore social service occupations (Cole and Hanson, 1975). Separate sex norm groups (assuming the old types of items and scales) are more likely to result in gender-independent recommendations for exploration, without apparent loss of reliability or validity (Diamond, 1975). (3) changes in items which are possible even with present socialization patterns, permit use of the same pooled items, same scales, raw score reports and the same norms without loss of predictive validity, construct validity or reliability when the criterion groups are weighted equally by base rates (Hanson, Prediger and Schussel, 1977).

Technically, it seems demonstrated that vocational interest measures need not restrict men and women to sex-segregated exploration of occupations, as long as the validity estimates are based on criterion groups weighted equally by base rates (Hanson and Rayman, 1976; Prediger, 1976). In this sense, occupational interest inventories do not, for reasons of validity, have to refer men and women to different areas for exploration. In Prediger's terms, it has been proven that sex restrictiveness is not essential for validity.

C. Values:

Hanson and Prediger's demonstration of the validity of scales which are almost gender-independent at the item level turns the debate from psychometrics to values. As noted earlier, most occupations are still segregated by gender in the United States (Prediger and Cole, 1976). Change is slow: few women are plumbers, few men are nursery school teachers; few women hold senior managerial positions in any field; few men are in secretarial work. While the picture may change rapidly in terms of proportionate increases, (since for example adding four women

electricians to two women electricians can create a 100% increase), in absolute numbers the existing stereotypes are glacial in their movement. Encouragingly, new occupations such as laser technologist are being created and these typically are more gender-independent than long-established occupations; and some other jobs such as taxi-cab driver, bus driver and telephone operator, have become almost desegregated in larger cities. A recent review of the literature (Leifer and Lesser, 1976), traces (a) occupational distributions to the inequities in supply side, and (b) the scarcity of men and women trained in non-traditional occupations back to restricted socialization of early interests.

Those who believe that educational measurement should reflect whatever differential socialization has been in the past in order to maintain predictive validity as judged by the interests of adults constituting today's criterion groups, argue that using criterion groups weighted equally for base rates or developing gender-free item pools is beginning at the wrong end of things. Holland, for example, writes,

> "Interest inventories can be used to help people plan their career development rather than as devices to be abandoned or revised to secure more desirable scores... the vocational options for all persons can be increased by several social actions. One short-term strategy is removal of educational or experiential barriers that prevent girls and women, blacks and other groups from learning about their interests and competencies, and from incorporating them fully into their self-definitions...Interest inventories are assessments, not social action devices. Attempts to make them otherwise are an anti-intellectual, unscientific, destructive activity (1975, p. 43; see also Gottfredson, Holland and Gottfredson, 1976).

Those who believe educational testing should not be part of segregated socialization argue in favor of creating measures which reflect the similar socialization experiences for men and women already part of our society, where it is possible to maintain reliability, construct and predictive validities.

Hanson et al. comment:

> "The data accumulated so far indicate that career suggestions need not be sex restrictive. The sex differences found in interest inventory scores and items may simply be an unfortunate legacy from an era of measurement that took traditional sex roles for granted." (1977, p. 30)

And Cole and Hanson argue:

> "If the opportunity dominance hypothesis is supported eventually, inventory results consistent with the socialization dominance hypothesis will have reinforced incorrect and inappropriate stereotypical views and minimized further exploration. On the other hand, if the socialization dominance hypothesis is supported, inventory results consistent with the opportunity dominance hypothesis will have led people to waste time exploring new career areas; but probably nothing more harmful will have occured since the exploration should result in the elimination of inappropriate suggestions. Thus..our belief not only in the opportunity dominance hypothesis, but more importantly, in its high potential for positive social effect and its low potential for negative social effect." (1975, p. 14)

C. Extrapolation to Other Uses of Occupational Interest Tests and to Other Educational Measurement

1. Employee Selection: Occupational interest measures have been used for purposes other than individual career guidance. They have been routinely administered, for example, as part of employee selection in large industries, particularly at the managerial and executive levels. Courts, since the Griggs v Duke Power decision, have established the precedent that employee selection devices can not be discriminatory in their consequences unless the employer proves that the discriminatory aspects of the selection device are a necessary component of successful work performance. The Griggs rule has been tested in over 160 cases. Some plaintiffs allege social class discrimination (e.g., where requiring a college degree of airline pilots eliminated lower income individuals); some allege ethnic discrimination (e.g., where the general intellectual ability selection device apparently included items reflecting cultural differences which were unrelated to job performance). The courts generally have upheld the use of formal educational credentials for employee selection but have struck down the use of educational tests for selection unless fairly strong validation is provided by employers.

A Griggs-type challenge has not been brought against the use of occupational interest tests in employee selection as discriminatory by gender, although one such case is now before the U.S. Government's Equal Employment Opportunity Commission. Fitzgerald (1975) extrapolating from the Griggs precedent, concludes that decisions regarding discriminatory consequences probably would apply to the use of occupational and other educational measures for employee selection if suit were brought on the grounds of gender discrimination.

2. Sex Fair Achievement Measurement: The generally lower performance of women on measures of mathematics achievement (used for college and graduate school entrance) has been a matter of recent concern. While most researchers ascribe these differences to socialized restrictions on the development of mathematical interests and competencies and, in some instances to sex-linked biological differences in capability, someeffort has been made to determine whether undue reference to one sex or another has negative effects on women's performance on standard mathematics achievement tests (Donlon and Lockhead-Katz, in progress).

Investigations thus far have not shown that changes in wording (of "the barber; he/the beautician; she" variety) would have substantial affects on performance on measures such as the SAT-M and the Stanford Achievement Tests. On the other hand, no one in the United States has yet examined the experiential content of the items themselves in the way Prediger and Hanson have studied the experiential content of interest inventory items. Extrapolating from the Prediger and Hanson arguments, such an approach may be worth a pilot investigation (see also Smiljanic, 1977).

D. Discussion

Those advocating an opportunities dominance approach to sex fairness in selection and guidance do not argue that the test reforms suggested would be sufficient by themselves to assure sex fair occupational development. The assumption is rather that socialization into restrictive interests, abilities and opportunities is a cumulative process, reflecting influences from many sources, chief of which will be parents, peers and the media. Schools, counselors and personnel selection officers may be limited in how much change can be achieved through sex fair education, although recent experimental studies (Guttentag and Bray, 1976)show how schools can undo sex stereotypes, particularly in the earlier grades, while training can undo still more (Sexton, 1977). It is also recognized that society as a whole is not unanimous about what sort of world is desirable. As failures to ratify theEqual Rights Amendment suggest, many men and some women feel that a woman's place is in the home, taking care of young children, in a nurturing, subservient, sex object and vicarious achievement relationship to men. They view with suspicion and alarm any effort to revise the tests before socialization "has caught up", believing the most valid tests are those which reproduce present occupational distributions (e.g., Novick, 1977)

Counter-poised against this view is the long-standing committment to individual freedom within the limits of personal and social responsibilities, and the belief that development---including occupational development---should not be constrained by ethnicity, social class,

religion, age, or gender. Interestingly, nations do not seem to vary widely in the occurance of occupational sex segregation; they do vary in whether this is regarded as a problem. The trend, however slow, seems to be toward equal rights by gender, including the right to equal employment and schooling. In this view, Margaret Mead's answer to a question about where to start in achieving social equality applies to occupational interest testing also. She said, "Everywhere at once."

Absent strong evidence proving good through one approach or harm through the other, the debate now shifts it would seem from the comfortable technical grounds of instrument construction and validation to the disquieting realm of personal opinion and social preference.

REFERENCES

Cole, N.S. and Hanson, G.R. Impact of interest inventories on career choice. In E.E. Diamond (Ed.), Issues of Sex bias and sex fairness in career interest measurement, Washington, D.C.: National Institute of Education, 1975, 1-20

Diamond, E.E. (Ed.) Issues of sex bias and sex fairness in career interest measurement. Washington, D.C.: National Institute of Education, 1975.

Donlon, T.F. and Lockhead-Katz, M. Performance consequences of sex bias in the test content of major achievement test batteries. Princeton, N.J.: Educational Testing Service, in progress.

Fitzgerald, L.E. The legal implications of sex bias in interest inventories. In E.E. Diamond (Ed.) Issues of sex bias and sex fairness in career interest inventories. Washington, D.C.: National Institute of Education, 1975, 201-212.

Gottfredson, G.D., Holland, H.L. and Gottfredson, L.A. The relation of vocational aspirations and assessment to employment reality. Journal of Vocational Behavior, 1975, 7, 135-148.

Guttentag, M. and Bray, H. Undoing Sex Stereotypes. New York: McGraw Hill, 1976.

Hanson, G.R. and Rayman, J. Validity of sex balanced interest inventory scales. Journal of Vocational Behavior, 1976, 9, 279-291.

Hanson, G.R., Prediger, D.J., and Schussel, R.H. Development and validation of sex-balanced interest inventory scales. ACT Research Report No. 78. Iowa City, Iowa: American College Testing Program, March 1977.

Harmon, L.W. Technical aspects: Problems of scale development, norms, item differences by sex, and the rate of change in occupational group characteristics-0. In E.E. Diamond (Ed.) Issues of sex bias and sex fairness in career interest measurement. Washington, D.C.: National Institute of Education, 1975.

Holland, J.L. The use and evaluation of interest inventories and simulations. In E.E. Diamond (Ed.) Issues of sex bias and sex fairness in career interest measurement. Washington, D.C.: National Institute of Education, 1975, 19-44.

Holland, J.L. The virtues of the SDS and its associated typology: A response to Prediger and Hanson. Journal of Vocational Education, 1976, 8, 349-358.

Holland, J.L. and Gottfredson, G.D. Sex differences, item revision, validity and the Self-Directed Search. Measurement and Evaluation in Guidance, 1976, 8, 224-228.

Johansson, C.B. Technical aspects: problems of scale development, norms, item differences by sex and rate of change in occupational group characteristics II. In E.E. Diamond (Ed.) Issues of sex bias and sex fairness in career interest inventories. Washington, D.C.: National Institute of Education, 1975, 65-88.

Novick, M.R. Equalizing educational and employment opportunity. Paper presented at the Third International Symposium on Educational Testing, 1977.

Prediger, D.J. and Hanson, G.R. The distinction between sex restrictiveness and sex bias in interest inventories. Measurement and Evaluation in Guidance, 1974, 7, 96-104

Prediger, D.J. Alternatives for validating interest inventories agains group membership criteria. ACT Research Report No. 76,Iowa City, Iowa: The American College Testing Program, July 1976.

Prediger, D.J. and Cole, N.A. Sex role socialization and employment realities: Implications for vocational interest measures. ACT Research Report No. 68. Iowa City, Iowa: American College Testing Program, 1976.

Puffer, J.A. Vocational Guidance: The Teacher as a Counselor. New York: Rand McNally, 1913.

Sexton, P.C. Women and Work. R&D Monograph No. 46. Washington, D.C.: U.S.Department of Labor, 1977.

Smiljanic, V. Shift from higher girls' IQ in first revisions of Binet-Simon scales to higher boys' IQ in new revisions. Paper presented at the Third International Symposium on Educational Testing, 1977.